

ABSTRACT

The invention provides a highly resilient network infrastructure that provides connectivity between a main network such as the Internet and a subnetwork such as a server-based (e.g., web server) local area network. In accordance with the invention, a network interface incorporated into a server hosting center provides a resilient architecture that achieves redundancy in each of three different layers of the Open System Interconnect (OSI) stack protocol (i.e., physical interface, data link, and network layers). For every network device that is active as a primary communication tool for a group of subnetworks, the same device is a backup for another group of subnetworks. Based on the same connection-oriented switching technology (e.g., asynchronous transfer mode (ATM)) found in high-speed, broadband Internet backbones such as that provided by InternetMCI, the network interface architecture provides a high degree of resiliency, reliability and scalability. In accordance with the invention, interface network routers which provide routing functionality and connectivity between the Internet backbone and the customer subnetworks are fully meshed with those deployed in the Internet backbone. Permanent virtual circuits (PVCs) providing a multitude of logical transmission paths between each hosting center router and every router in the Internet backbone, greatly reduces processing delays of data traffic through the infrastructure as only a single "hop" routing step is required between any external access point on the Internet backbone and a hosting center router.